CLAIMS:

1. A method of processing an image comprising:

measuring a set of pixel dependent attributes for a pixelated video frame, each pixel of said frame having a gray level, each gray level associated with a brightness level; and

in response to each and every pixel dependent attribute of said set of pixel dependent attributes meeting a corresponding criteria, decreasing the overall brightness of said video frame in accordance with a global brightness signal and increasing the brightness of the gray level of each pixel of said video frame in accordance with a local brightness control signal, the amount a particular gray level brightness is increased being dependent upon the particular gray level and a function of said measured pixel dependent attributes.

2. The method of claim 1,

wherein said set of pixel dependent attributes comprises one or more of pixel dependent attributes, each said pixel dependent attribute selected from the group consisting of a first attribute, a second attribute, a third attribute, a fourth attribute and a fifth attribute;

wherein said first attribute is an average or a median brightness of all pixels in said video frame;

wherein said second attribute is a number of dark pixels in said frame, each dark pixel having a value within a first range of gray level values;

wherein said third attribute is a number of white pixels in said frame, each white pixel having a value within a second range of gray level values;

wherein said fourth attribute is a number of gray pixels in said frame, each gray pixel having a value within a third range of gray level values; and

wherein said fifth attribute is a number of flesh tone pixels in said frame.

3. The method of claim 2, wherein said first, second and third ranges of gray level values do not overlap.

4. The method of claim 2,

wherein said criteria corresponding to said first attribute is said average or median brightness of all pixels in said video frame being less than a first value;

wherein said criteria corresponding to said second attribute is said number of dark pixels in said frame being greater than a second value;

wherein said criteria corresponding to said third attribute is said number of white pixels in said frame being less than a third value;

wherein said criteria corresponding to said fourth attribute is said number of gray pixels in said frame being greater than a fourth value; and

wherein said criteria corresponding to said first attribute is said number of flesh tone pixels in said frame being less than a fifth value.

5. The method of claim 2, wherein, the overall brightness of said video frame is decreased by an amount based on empirically generated value corresponding to the determined average or median brightness of said video frames.

6. The method of claim 2, wherein particular gray level brightnesses are increased by an amount based on empirically generated values corresponding to combinations of the number of dark pixels, the number of white pixels, the number of gray pixels and the number of flesh tone pixels in said video frame.

7. The method of claim 1, further including:

increasing a color saturation level of each pixel proportionally to the increase in brightness applied to mid-gray gray levels or proportionally to the global brightness decrease or both.

8. The method of claim 1, wherein the brightness of mid-gray gray levels of pixels of said video frame before said decreasing the overall brightness of said video frame and said increasing the brightness of the gray level of each pixel of said video frame are substantially the same after said decreasing the overall brightness of said video frame and said increasing the brightness of the gray level of each pixel of said video frame.

9. An apparatus for processing an image comprising:

means for measuring a set of pixel dependent attributes on a pixelated video frame, each pixel of said frame having a gray level, each gray level associated with a brightness level;

means for decreasing the overall brightness of said video frame by an amount in response to each and every pixel dependent attribute of said set pixel dependent attributes meeting a corresponding criteria; and

means for increasing the brightness of the gray level of each pixel of said video frame by different amounts in response to each and every response to each and every pixel dependent attribute of said set pixel dependent attributes meeting a corresponding criteria, the amount a particular gray level brightness is increased being dependent upon the particular gray level and a function of said measured pixel attributes.

10. The apparatus of claim 9, wherein said means for measuring a set of pixel dependent attributes includes one or more means, each means of said one or more means selected from the group consisting of means for determining an average or median brightness of all pixels in said video frame, means for determining a number of dark pixels in said frame, each dark pixel having a value within a first range of gray level values, means for determining a number of white pixels in said frame, each white pixel having a value within a second range of gray level values, means for determining a number of gray pixels in said

frame, each gray pixel having a value within a third range of gray level values, and means for determining a number of flesh tone pixels in said frame.

11. The apparatus of claim 10, further including:

means for selecting the amount the overall brightness of said video frame is decreased based on an emperically generated list of values corresponding to the measured average or median brightness.

12. The apparatus of claim 10, further including:

means for selecting the amounts particular gray level brightness's are increased based on an emperically generated list of values corresponding to combinations of the number of dark pixels, the number of white pixels, the number of gray pixels and the number of flesh tone pixels in said video frame.

13. A system for projecting an image onto a display screen comprising:

a light source;

a light-attenuating device for attenuating light emitted from said light source, said light-attenuating device responsive to a global brightness control signal;

a reflective electro-optical modulating device onto to which exit light from said light-attenuating device is projected, said electro-optical modulating responsive to a local brightness adjusted video signal;

means for projecting light reflected from said electro-optical modulating device onto said display screen;

a histogram analyzer adapted to receive a pixelated video frame of said image and to output said global brightness control signal, said global brightness control signal reducing the brightness of every pixel in said frame, adapted to output said local brightness adjusted video signal, said local brightness adjusted video signal increasing selected gray-levels of said pixelated frame and said histogram analyzer adapted to analyze the pixels of

said frame, said global brightness control signal and said local brightness adjusted video signal based on said analysis of said pixels.

14. The system of claim 13, wherein said histogram analyzer further includes:

a brightness calculating circuit adapted to determine an average or median brightness of all pixels in said video frame and to generate a brightness signal;

a threshold circuit adapted to determine a number of dark pixels in said frame, each dark pixel having a value within a first range of gray level values, adapted to determine a number of white pixels in said frame, each white pixel having a value within a second range of gray level values, and adapted to determine a number of gray pixels in said frame, each gray pixel having a value within a third range of gray level values; and

a flesh tone circuit adapted to determine a number of flesh tone pixels in said frame.

15. The system of claim 14, further including one or more means, each means selected from the group consisting of means for determining if said brightness signal less than a first value; means for determining if said number of dark pixels is greater than a second value; means for determining if said number of white pixels is less than a third value, means for determining if said number of gray pixels is greater than a fourth value, means for determining if said number of flesh tone pixels is less than a fifth value; and wherein said global brightness control signal and said local brightness adjusted video signal cause changes in the brightness of gray levels of pixels in said frame only if said brightness signal is measured and is less than said first value and said number of dark pixels is measured and is greater than said second value and if said number of white pixels is measured and is less than said third value and said number of gray pixels is measured and is greater than said fourth value and if said number of flesh tone pixels is measured and is less than said fifth value.

16. The system of claim 14, further including a table of control words, a particular control word selectable based on a signal representing a combination of said brightness signal, said number of dark pixels, said number of white pixels, said number of gray pixels and said number of flesh tone pixels, said control words determining said global said global brightness control signal and said local brightness adjusted video signal.

17. The system of claim 16, wherein said control words are empirically generated.

18. The system of claim 13, further including means for increasing the color saturation of mid-gray gray level pixels in proportion to the increase in brightness of mid-gray gray levels.

19. The system of claim 13 wherein said reflective electro-optical modulating device is selected from the group consisting of liquid crystal display devices, liquid crystal on silicon display devices and micro-mirror display devices.

20. The system of claim 13 wherein said light-attenuating device is selected from the group consisting of adjustable diaphragms, transmission liquid crystal display devices and polarizing twisted nematic cells.